

Appl. No. 10/777,204  
Amdt. Dated December 13, 2005  
Reply to Office Action of September 26, 2005

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1-3 (Cancelled)

4. (Currently Amended) An apparatus for supporting a biofilm in a liquid comprising:  
a) a plurality of gas permeable, water impermeable, hollow fibers, each hollow fiber having a lumen, an outer surface and an open end; and,  
b) a header, the header having a cavity and a port open to the cavity,  
wherein the hollow fibers extend from the header, with the outer surfaces of the open ends of the hollow fibers sealed to the header and the lumens of the hollow fibers communicating with the port through the cavity  
and wherein the fibers are made of polymethyl pentene.

5. (Currently Amended) The apparatus of claim 4 wherein the fibers have non-porous dense-walls.

6. (Previously Presented) The apparatus of claim 4 wherein the hollow fibers have an outside diameter of 50 microns or less.

7. (Previously Presented) The apparatus of claim 4 wherein the hollow fibers are between 1 metre and 5 metres long.

8. (Currently Amended) ~~The apparatus of claim 4~~ An apparatus for supporting a biofilm in a liquid comprising:  
a) a plurality of gas permeable, water impermeable, hollow fibers, each hollow fiber having a lumen, an outer surface and an open end; and,

Appl. No. 10/777,204  
Amdt. Dated December 13, 2005  
Reply to Office Action of September 26, 2005

b) a header, the header having a cavity and a port open to the cavity,  
wherein the hollow fibers extend from the header, with the outer surfaces of the  
open ends of the hollow fibers sealed to the header and the lumens of the hollow fibers  
communicating with the port through the cavity, and  
\_\_\_\_\_ wherein the hollow fibers extend along their length generally in a first direction  
and further comprising second fibers extending along their length generally in a second  
direction, the second direction being perpendicular to the first direction.

9. (Previously Presented) The apparatus of claim 8 wherein the hollow fibers and  
second fibers form a fabric.

10. (Previously Presented) The apparatus of claim 9 wherein the fabric is generally  
continuous across the length of the hollow fibers.

11. (Previously Presented) The apparatus of claim 4 wherein the hollow fibers have  
second open ends.

12. (Previously Presented) The apparatus of claim 11 wherein the second open ends of  
the hollow fibers are potted in a second header.

13. (Previously Presented) The apparatus of claim 12 wherein the second open ends  
communicate with a second port of the second header through a second cavity of the  
second header.

14. (Currently Amended) ~~The apparatus of claim 13~~ An apparatus for supporting a  
biofilm in a liquid comprising:

a) a plurality of gas permeable, water impermeable, hollow fibers, each hollow  
fiber having a lumen, an outer surface and an open end; and,

b) a header, the header having a cavity and a port open to the cavity,

Appl. No. 10/777,204  
Amdt. Dated December 13, 2005  
Reply to Office Action of September 26, 2005

wherein the hollow fibers extend from the header, with the outer surfaces of the open ends of the hollow fibers sealed to the header and the lumens of the hollow fibers communicating with the port through the cavity,

and wherein the hollow fibers have second open ends, the second open ends of the hollow fibers are potted in a second header, the second open ends communicate with a second port of the second header through a second cavity of the second header and the header and the second header are spaced apart from each other and the hollow fibers are arranged into one or more fabric sheets extending between the headers.

15. (Previously Presented) The apparatus of claim 14 wherein the fabric sheets are generally parallel to each other.

16. (Previously Presented) The apparatus of claim 15 wherein adjacent fabric sheets have a spacing between them of between 3 mm and 15 mm.

17. (Previously Presented) The apparatus of claim 16 further comprising spacers between the fabric sheets outside of the header.

18. (Previously Presented) The apparatus of claim 14 wherein the fabric sheets are woven.

19. (Previously Presented) The apparatus of claim 14 having an oxygen transfer efficiency of 50 % or more.